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ABSTRACT

To investigate the higher level comprehension strategies used by children reading basal reader stories, a study compared the results of an earlier investigation of 50 fourth grade level readers' comprehension strategies with findings gained from 30 subjects using a sixth grade basal reader. Subjects were asked to read aloud from a basal and stop after each sentence to tell what they had been thinking or doing while reading the material. Results showed that similar strategies were used at both reading levels. Inference, personal identification, reference to previous experience, image, evaluation, stated failure to understand, hypothesis, and self-correction were used in both samples, while self interrogation, back reference, and definition were found among the younger group. An analysis of the responses showed considerable variability in the strategies students chose. Strategy use appeared to vary more as a function of individual reader preference and text than of developmental stage or reader proficiency. (MM)

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Strategic Activity in Story Comprehension at Two Levels of Reader Proficiency

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This study is an extension of an earlier investigation (Alvermann & Phelps, 1982) of higher-level comprehension strategies used by children when reading a basal reader story. Alvermann & Phelps identified eleven comprehension strategies employed by fourth-grade level readers. They also found that these readers employed certain of these strategies

with significantly different frequency across story grammar segments.

The purpose of the present study was to extend the previous analysis to another level of reading proficiency in order to answer two questions:

1. Would overall strategic activity be similar in readers at the fourth-grade level and readers at the sixth-grade level?
2. Would strategic activity within stories be the same at both levels?

Method

Subjects for the original study were selected randomly from reading groups using a fourth-grade basal for instruction at two schools, one in a large urban district in the eastern United States, the other a medium-sized midwestern city. Twenty-five students were selected from each school, and the sample included 28 third graders, 12 fourth graders, and 10 fifth graders. Median grade equivalent reading score for this sample was 4.8.

Thirty subjects for the present study were selected randomly from reading groups using sixth-grade basals readers at the first school mentioned above. This sample included 2 fourth graders, 10 fifth graders, 11 sixth graders, 1 seventh grader, and 6 eighth graders. Median reading achievement for the group was 6.9.

Data was collected from both groups using a "think out loud" procedure (Olshavsky, 1976-77; Olson, Duffy, & Mack, 1983). Each group

read a story selected from a basal reader which was not being used in any of the reading groups involved in the studies. It was decided to use two different stories, one from a reader at each grade level, to avoid the possibility that story difficulty might be a confounding factor in interpretation of results. However, this left the possibility that different story content might also make interpretation difficult. To minimize this problem, the stories selected were both African folk tales, the fourth-grade story about a spider (Arkhurst, 1978), and the sixth-grade story about a trick played by a tribal chieftian (Chetin, 1980,) The fourth-grade story was 913 words long and the sixth-grade story was 1051 words long.

Procedures established by Alvermann & Phelps (1982) were used to collect data from the sixth-grade sample. In a brief training period with the "think out loud" procedure, each subject was given a short passage to read silently. A red dot was placed after each sentence in the selection. Students were instructed to stop at each dot and talk briefly about what they had been thinking or doing while reading the preceding material. During the training session the experimenter asked non-directive questions to encourage students' responses.

After the training period, students were asked to repeat the "think out loud" procedure with the sixth-grade story. Students were tape recorded and told to proceed as though the experimenter were not present. The tape recordings were transcribed and analyzed by the experimenter

for higher-level strategies, defined as any purposeful attempt to comprehend the story beyond a literal restatement or paraphrase of the sentence.

Six of the thirty protocols were randomly selected for a reliability check and scored by the senior investigator of the fourth-grade study. An uncorrected reliability of 86% was obtained, compared to 87% for the fourth-grade protocols. (This should confirm the validity of the strategy list and procedures of the original study.) The two raters reached agreement on all discrepancies in the reliability sample, and some minor corrections were made in the remaining protocols based on the results of the reliability check.

Results

The eleven strategies identified in the fourth-grade sample are described in Table 1. Of these eleven, ten were also identified in the sixth-grade sample; the exception is Self-Interrogation.

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Insert Table 1 about here.

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The strategies employed by the sixth-grade sample are identified in Table 2. The "miscellaneous" category in Table 2 refers to three strategies which occurred infrequently, including one not encountered in the fourth-grade sample. This was Affective Reaction, a statement of feeling or emotion related to the story. ("This makes me feel proud.")

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Insert Table 2 about here.

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A Chi Square analysis of the seven most-frequently used strategies was conducted to determine if there was a relationship between the sample and strategy use. (See Table 3.) The significant Chi Square suggests that a relationship does exist, and the Cramer's Phi of .26 suggests that the relationship is small to moderate.

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Insert Table 3 about here.

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Discussion

As with the fourth-grade sample, there was considerable variability within the sixth-grade sample in the way students responded. Two sixth-grade protocols yielded no higher-level strategies, while four subjects gave more than 50 of a possible 80 higher-level responses. Where some readers used one or perhaps two strategies exclusively, others were more flexible and changed strategies frequently as they progressed through the story.

The Chi Square analysis does not give any indication of where the differences may be, or to what they may be attributed, but examination of the descriptive data in Tables 1 and 2 reveals interesting discrepancies in the overall rank and frequency of use of four strategies: Per-

sonal Identification, Image, Hypothesis, and Failure to Understand. It is not possible to explain quantitatively whether these differences are due to differences in the sample or differences in the stories. An analysis of strategic activity within Stein and Glenn's (1979) story grammar categories was conducted with the fourth-grade sample, but the sixth-grade story did not parse neatly into Stein and Glenn's grammar because multiple characters in the story were attempting to achieve various goals. Therefore, to further explore the apparent differences between the two samples, an analysis was conducted of those sentences in each story which prompted an unusually high proportion of the four discrepant strategies.

To understand this analysis, it is necessary to describe each story briefly. In the "Spider" story, the main character cannot decide which of two feasts to attend. He ties a rope around his waist and gives an end to each of his two sons with instructions to pull when the food is served. The sons pull at the same time, Spider is caught in the middle, and thus spiders to this day have a thin waist. The "Trick" story concerns a visitor to a tribe of warriors who repeatedly runs and hides when the tribe joins in battle with their enemies. Despite the visitor's cowardice, the chief toasts his valor and invites him to sit with the bravest men in the longhouse. Finally, the visitor stands and fights alongside his hosts.

The Personal Identification strategy, a refrrence to the reader or a member of the reader's immediate family, was used by only 8% of the

fourth grade sample, yet was the second most frequently-used strategy and was employed by 22% of the sixth grade sample. In the "Spider" story, Personal Identification responses clustered primarily around those sentences which described Spider's persona, especially sentences which depicted him as lazy or fun. In the "Trick" story, Personal Identification clusters around descriptions of the tribe folk and the main characters. ("That's like my father. He's a hunter.") The difference appears to be due to the fact that readers identify more readily with human characters than with animal characters.

Image (a concrete visual, auditory, tactile, taste, or olfactory reference) was the second-ranked strategy in the fourth-grade sample, used by 54% of the readers. With the sixth-grade sample, however, it appeared in only 23% of the protocols. In the "Trick" story, no more than one or two of the sixth-grade readers gave an Image response at any single sentence. On the other hand, there are five distinct types of sentences which prompted multiple Image responses in the "Spider" story: descriptions of Spider's appearance; mentions of food and Spider's reaction to food; sentences which described the use of the rope; common idioms and images ("he jumped for joy," "his eyes sparkled"); a sentence just before the climax of the story in which the narrator addresses the readers directly, "My friends, can you image what happened?"

The difference in Image responses would appear to be due to differences in the plot and writing style of the two stories. While food is mentioned in the "Trick" story, it is not described in great detail and

it is not central to the plot as it is in "Spider." There are also none of the common images and idioms in the sixth-grade passage of the type which prompted Image responses in "Spider."

Hypothesis represents 10.5% of the total fourth-grade strategies, yet only 3.0% of the sixth-grade responses. In the "Spider" story, Hypothesis clustered around several mentions of the rope and at the same direct address to the reader which prompted a high proportion of Image strategies. In the "Trick" story, Hypothesis strategies were generated with great frequency at only two points in the story, at the first mention of "the trick," and near the end, when the chief reverses his previous pattern and asks the visitor to sit with the other warriors rather than at his side. Analysis of the Hypothesis responses in both stories suggests that the "Spider" story, with its clear-cut development and concrete plot devices (food, the rope), encourages "feedforward," while the multiple character goals and relatively abstract plot devices of the other story (bravery, the trick) make it harder to guess what may be going to happen.

Twice as many readers in the fourth grade sample made Failure to Understand responses as in the sixth grade group. Failure to Understand did not cluster at any particular sentences in the sixth-grade story, while in "Spider," Failure to Understand was used frequently when they the readers encountered the names of the Spider's sons (Kwaku and Kuma) and when they read the phrase, "It was not the custom to refuse

food to anyone." This particular phrase caused difficulty for many readers, who apparently expected the phrase to read, "to refuse food from" and had difficulty accommodating the author's more idiomatic usage.

From looking at responses to specific sentences, it may be concluded that strategic differences were due more to differences in the stories than to differences in the samples. The fact that similar strategies were generated by both samples, and that these strategies are similar to those found by other investigators (Olshavsky, 1976-66; Risko & Smartt, 1982) would seem to suggest that strategy use varies more as a function of individual reader preference and text than of developmental stage or reader proficiency.

For teachers, this difference in strategic approach to reading would imply a need to differentiate teaching strategies as well as to offer readers diverse text content and style. There are several implications for further research, as well. There is a need to continue investigation of those story elements and text differences which apparently evoke different strategic responses in readers. There are also many unanswered questions about factors such as comprehension success, reading proficiency, and interest which might influence individual variations in strategic activity.

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Table 1

Frequency of Higher-Level Strategy Use:

Fourth Grade Sample*

Rank	Strategy	Frequency	% of Total Strategies	% of Sample Using Strategy
1	Inference	325	28.2	92
2	Image	204	17.7	54
3	Hypothesis	121	10.5	52
4	Personal Identification	93	8.1	40
5	Reference to Previous Experience	92	8.0	44
6	Stated Failure to Understand	89	7.7	42
7	Self-Interrogation	74	6.4	16
8	Evaluation	72	6.3	44
9	Back Reference	32	2.9	32
10	Definition	29	2.5	36
11	Self-Correction	20	1.7	24
	Total:	1,151	100.0	

n = 50 subjects x 82 responses = 4,100

1, 151 = 28% of total responses

*From Alvermann & Phelps, 1982

Table 2

Frequency of Higher-Level Strategy Use:

Sixth Grade Level

Rank	Strategy	Frequency	% of Total Strategies	% of Sample Using Strategy
1	Inference	163	29.6	87
2	Personal Identification	125	22.7	37
3	Reference to Previous Experience	70	12.7	30
4	Image	62	11.2	23
5	Evaluation	51	9.2	50
6	Stated Failure to Understand	36	6.5	20
7	Hypothesis	17	3.1	33
8	Self-Correction	8	1.5	20
	Miscellaneous	19	3.0	13
	Total:	551	100.0	

n = 30 subjects x 80 responses = 2,400

551 = 23% of total responses

Table 3

Chi Square Comparison of Strategy Use:

4th and 6th Grade Samples

	Frequency (Expected Response)	
Strategy	4th Grade	6th Grade
Inference	325 (319.9)	163 (168.2)
Image	204 (174.3)	62 (91.7)
Hypothesis	121 (90.4)	17 (47.6)
Personal Identification	93 (142.8)	125 (75.2)
Previous Experience	92 (106.2)	70 (55.8)
Failure to Understand	89 (81.9)	36 (43.1)
Evaluation	72 (80.6)	51 (42.4)

$X^2 = \underline{105.26}$, df = 6

$p < .001$

Cramer's Phi = .26